

ABSTRACT OF THE DISCLOSURE

A magnetocaloric refrigeration device, placed in a controllable magnetic field, includes a heat release/absorption module. The heat release/absorption module includes a magnetocaloric working unit and at least one heat pipe. The magnetocaloric working unit is made of a magnetocaloric material. The temperature of the unit changes as the magnetic field is applied or removed. The heat pipe includes evaporation and condensation portions respectively extending from top and bottom of the magnetocaloric working unit. When a magnetic field is applied to the magnetocaloric working unit to absorb heat, the lower condensation portion of the heat pipe transfers heat upward to the magnetocaloric working unit. When the magnetic field is removed from the magnetocaloric working unit to release heat, the heat from the magnetocaloric working unit is transferred to the outside through the upper heat release portion. The magnetocaloric refrigeration device has advantages of simple structure, low production cost, and small size.